



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/567,892

02/08/2006

James Daniel Asbury

209546-103493

7195

44200

7590

10/15/2008

HONIGMAN MILLER SCHWARTZ & COHN LLP

38500 WOODWARD AVENUE

SUITE 100

BLOOMFIELD HILLS, MI 48304-5048

EXAMINER

SINGH, ARTI R

ART UNIT

PAPER NUMBER

1794

MAIL DATE

DELIVERY MODE

10/15/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/567,892

Applicant(s)

ASBURY, JAMES DANIEL

Examiner

Arti Singh

Art Unit

1794

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02/08/06 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-893)
Paper No(s)/Mail Date 02/08/06
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-12 are rejected under 35 U.S.C. 102(b) as being anticipated by US 2003/0141005 issued to Donatti et al.

3. US 2003/0141005 issued to Donatti et al. discloses headliners for vehicle made with the same structure and chemistry as that which Applicant desires.

This invention relates to headliner components for vehicles, and in particular to headliner components comprising an impregnated polyurethane substrate and at least one multi-layered laminate for uniting the substrate to a decorative material. This invention further relates to a method of making the headliner components 0003. Paragraphs 0022-0030 describe the equivalent layers and are provided verbatim for Applicant.

Referring now more particularly to the drawings, a headliner of an embodiment of this invention is shown in FIG. 1 and generally designated by reference numeral 100. The headliner 100 includes a relatively thick rigid substrate 102, which can be a fiberglass-impregnated polymer-based material, such as a fiberglass-impregnated polyurethane. *The Examiner is equating this layer to be equivalent to Applicant's reinforcement layer.* The surface of the substrate

102 facing towards the vehicle interior compartment (not shown) is known in the industry as the A-side surface, whereas the opposite surface of the substrate 102 facing away from the vehicle interior when the headliner 100 is mounted is known as the B-side surface. Generally, the thickness of the impregnated substrate 102 is, for example, in a range of from about 4 mm to about 24 mm, and more preferably is from 4 mm to 18 mm. Representative densities for the impregnated substrate 102 range from 48 kg/m.sup.3 to 160 kg/m.sup.3 (3.0 to 10.0 lbs/ft.sup.3).

[0023] Positioned on the A-side surface of the substrate 102 is a multi-layered laminate 120, which in the illustrated embodiment is a tri-layered laminate. The multi-layered laminate 120 is interposed between the substrate 102 and a decorative cloth material 106 having an optional foamed backing 108. The decorative cloth material 106, which can be made of, by way of example, nylon, rayon, polyester, cotton, or combinations thereof, is exposed to the vehicle interior compartment and conceals the substrate 102 and laminate 120 from view. The thickness of the tri-layered laminate 120 can be in a range of from 0.025 mm to 0.051 mm (i.e., 1.0 mils to 2.0 mils, or 0.0010 inches to 0.0020 inches), preferably 0.038 mm to 0.051 mm (i.e., 1.5 mils to 2 mils, or 0.0015 inches to 0.0020 inches) .

[0024] The first layer of the tri-layered laminate 120 is an adhesive layer 122, which adheres the multi-layered laminate 120 to the decorative cloth 106 and its optional foamed backing 108. In a preferred embodiment, the adhesive

layer 122 is ethylene-vinyl acetate, although other less preferred adhesives, such as polyethylene, may be used. Generally, the deposition of the adhesive layer 122 is controlled to produce a thickness which, when measured as concentration over a cross section of the adhesive layer 122, is in a range of from 30 g/m.sup.2 to 40 g/m.sup.2. The ethylene-vinyl acetate layer 122 is preferably corona treated, e.g., flame treated or electrically or electrostatically charged, to have a dyne level from 46 to 55, preferably from 47 to 49 dynes. The adhesive layer 122 should have a softening temperature lower than the temperature at which the decorative cloth material 106 thermally degrades, so that the adhesive layer 122 can be softened or melted without discoloring the decorative cloth material 106. Generally, softening temperatures of from about 99.degree. C. (210.degree. F.) to about 104.degree. C. (220.degree. F.) are preferred for the adhesive layer 122.

[0025] The second layer of the laminate 120 is a barrier layer 124 that functions to prevent the polyurethane and polyurethane precursors from bleeding through the laminate 120 during the molding process, such as compression molding, in which the laminate 120 is placed in a mold die prior to injection of polyurethane precursors for forming the substrate 102. The barrier layer 124 is preferably a film comprising polyethylene, preferably with pores not greater than 25 microns. Other materials, such as polypropylene, polyethylene-polypropylene copolymer films, and other olefin polymers, copolymers, and terpolymers can be used, so long as the materials can provide the desired barrier function at a suitable thickness while exhibiting

acceptable molding, fluidity and softening point. Generally, the deposition of the barrier layer 124 is controlled to produce a thickness which, when measured as concentration over a cross section of the barrier layer 124, is in a range of from 10 g/m.sup.2 to 20 g/m.sup.2, preferably 16 g/m.sup.2. The elongation of the barrier layer 124 is preferably at least 40%.

[0026] The third layer of the laminate 120 is a shape-retaining layer 126 having sufficient strength to prevent the configuration of the shape-retaining layer 126 from being influenced by pores in the substrate 102. The shape-retaining layer 126 thereby prevents the decorative cloth material 106 from conforming to pores in the A-side surface of the substrate 102 so that the decorative cloth material 106 is free of pits and dimples. Generally, the deposition of the shape-retaining layer 126 is controlled to produce a thickness which, when measured as a concentration over a cross section of the shape-retaining layer 126, is in a range of from 30 g/m.sup.2 to 40 g/m.sup.2. The shape-retaining layer 126 preferably comprises a spun bond (or "non-woven") polypropylene or polyester. As referred to herein, spun bond or non-woven materials are characterized by an absence in distinction of directional properties. As with the barrier layer 124, the shape-retaining layer 126 preferably has an elongation of at least 40%. Antioxidants can be added to the barrier and shape-retaining layers 124 and 126.

[0027] The shape-retaining layer 126 of the laminate 120, which is preferably disposed closest to the substrate 102, is primarily responsible for imparting

the laminate 120 with most of its physical properties, although the barrier layer 124 has sufficient influence as to cause distinctions in directional properties of the laminate 120. Desirably, the laminate 120 has a machine tensile strength and cross-machine tensile strength (ASTM D 882-83) in ranges of 2700-2900 psi and 2400-2600 psi, respectively, and more preferably 2800 psi and 2500 psi, respectively. The elongation (ASTM D 882-89) of the laminate 120 is preferably 40-60%, with the machine elongation preferably being 45% and the cross-machine preferably being 56%. The tear strength (ASTM D 1922-67) is preferably 512. \pm .50 grams/16 plies along the machine direction and 316. \pm .50 grams/16 plies along the cross-machine direction.

[0028] It should be understood that additional layers, including more than one of the layers 122, 124, and 126, can be included in the multi-layered laminate 120, so long as the additional layers do not interfere with the above-discussed functions of the layers 122, 124, and 126.

[0029] In accordance with a preferred embodiment, the laminate 120 can be prepared as follows. The non-woven shape-retaining layer 126 is extruded at approximately 0.13 mm to 0.15 mm (5 to 6 mils, or 0.005 inch to 0.006 inch) thickness onto the barrier layer 124. The layers 124 and 126 are then run through a nip roller to achieve a desired film thickness of approximately 0.025 mm to 0.051 mm (i.e., 1.0 mils to 2.0 mils, or 0.0010 inches to 0.0020 inches), thus forming a bi-laminate. The layers 124 and 126 are then passed through a series of chiller rollers, followed by a series of heater elements to warm the

bi-laminate. After the bi-laminate is formed, the adhesive layer 122 is fed onto the bi-laminate of layers 124 and 126 then passed with layers 124 and 126 through a series of hot rollers which compress and laminate the adhesive film 122 to layer 124 to make the tri-laminate 120. The tri-laminate 120 is cooled and, optionally, cut and/or rolled for temporary storage.

[0030] Positioned on the opposite side of the substrate 102, also known in the industry as the "B-side" of the substrate 102, is a barrier layer 110. In a preferred embodiment, the barrier layer 110 is a Rochelle (polyethylene copolymer) film, which is available from Rochelle Plastics of Rochelle, Ill. and has a Tg of 83.degree. C. It is also within the scope of this invention to use other materials as the barrier layer 110, including the use of the above-described multi-layered laminate as the barrier layer 110. A vibration-dampening layer 112 is optionally interposed between the barrier layer 110 and the vehicle frame (not shown) to minimize rattles and squeaks cause by relative movement between the headliner 100 and the vehicle frame. A representative vibration-dampening layer 112 is flame laminate polyether grade 11330XXX, available from General Foam of East Rutherford, N.J. As referred to herein, the vibration-dampening layer 112 also encompasses a scrim material, such as one having either (a) a bilaminate structure composed of a non-woven polypropylene film and a film of polypropylene, polyethylene, or polypropylene-polyethylene copolymer or (b) a trilaminate composed of two non-woven polypropylene films sandwiching a film of polypropylene, polyethylene, or polypropylene-polyethylene

copolymer. The thickness of the non-woven polypropylene preferably is controlled to provide about 33.9 grams/m.sup.2 (1 ounce/yd.2) of material, whereas the polyethylene and/or polypropylene is about 35.9 grams/m.sup.2 (30 grams/yd2).

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arti Singh whose telephone number is 571-272-1483. The examiner can normally be reached on M-R 8-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Milton Cano can be reached on 571-272-1483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Arti Singh/
Primary Examiner
Art Unit 1794

Application/Control Number: 10/567,892
Art Unit: 1794

Page 9